

LETTER

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Chlorhexidine-dress related contact dermatitis—the precautionary principle is no more relevant!

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Dear editor,

We read carefully the Buetti et al. [1] post hoc analysis of two open randomized multicenter French studies, comparing non-disinfectant dressings with CHG-releasing sponge (December 2006 to May 2008) [2] and with CHG-releasing gel (May 2010 to July 2011) [3].

After adjustment for confounders, gel-dress showed similar risk for MCRI compared to sponge-dress (HR 0.80, 95% CI 0.28–2.31, $p = 0.68$) and CRBSI (HR 1.13, 95% CI 0.34–3.70, $p = 0.85$), less dressing disruptions (OR 0.72, 95% CI 0.60–0.86, $p < 0.001$), and more contact dermatitis (OR 3.60, 95% CI 2.51–5.15, $p < 0.01$). However, gel-dress increased the risk of contact dermatitis only if CHG was used for skin antisepsis (OR 1.94, 95% CI 1.38–2.71, $p < 0.01$).

Alcoholic-CHG was used for skin preparation in 1533 of gel-dress recipients (72.7%) and only 20 patients with sponge-dress (1.3%) [1]. In a recently published real-world evidence study, the gel-dress was applied with CHG for skin antisepsis [4]. Initial rates of contact dermatitis were consistent with previous findings [3]. Following the implementation of a redesigned dressing in March 2012, contact dermatitis rates dropped from 5.5 episodes/1000 device-days to 0.3/1000 device-days and

same levels were reported for both sponge- and the gel-dress [4].

Several factors may have played a role in this improvement. Firstly, re-designed adhesive distribution in the dressing resulted in an improved skin moisture evaporation through the transparent membrane. Secondly, two-step skin preparation (scrubbing) were never incorporated in our guidelines for skin antisepsis with CHG. Thirdly, time allowed for the disinfecting solution to fully evaporate was part of our guidelines at time of introduction of CHG dressings in 2007. This practice may decrease initial moisture build-up on the skin surface.

Above-mentioned conclusion on increased risk for skin irritation is highly concerning as it may challenge major elements from widely recommended bundle to prevent CRBSI. Alcoholic solutions of CHG have demonstrated superior efficacy in prevention of infections complications and graded IA by CDC Guidelines [5]. Supported by two randomized studies [1, 2] and confirmed by a real-world study [4], the use of CHG-dressings to reduce CRBSI is also a IA scored recommendation [5].

Accordingly, we congratulate Buetti et al. for their outstanding methodological skills applied in their post hoc analysis, but it is of crucial importance to challenge some of the conclusions. We urge the medical community not to discard either the use of chlorhexidine-dressings and/or alcoholic solutions of CHG for skin preparation.

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Authors' contributions

PE, JLP, JPR and YAQ analyzed the data of the studies included in the post hoc analysis published by Buetti et al. and have written the letter submitted for publication. All authors read and approved the final manuscript.

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Consent for publication

The co-authors agree with the publication of this letter to the editor.

Competing interest

Philippe Eggimann is consultant for 3M.

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References

1. Buetti N, Ruckly S, Schwebel C, et al. Chlorhexidine-impregnated sponge versus chlorhexidine gel dressing for short-term intravascular catheters: which one is better? *Crit Care*. 2020;24:458. <https://doi.org/10.1186/s13054-020-03174-0>.
2. Timsit J, Schwebel C, Bouadma L, et al. Chlorhexidine-impregnated sponges and less frequent dressing changes for prevention of catheter-related infections in critically ill adults: a randomized controlled trial. *JAMA*. 2009;301(12):1231–41. <https://doi.org/10.1001/jama.2009.376>.
3. Timsit JF, Mimoz O, Mourvillier B, et al. Randomized controlled trial of chlorhexidine dressing and highly adhesive dressing for preventing catheter-related infections in critically ill adults. *Am J Respir Crit Care Med*. 2012;186(12):1272–8.
4. Eggimann P, Pagani J, Dupuis-Lozeron E, et al. Sustained reduction of catheter-associated bloodstream infections with enhancement of catheter bundle by chlorhexidine dressings over 11 years. *Intensive Care Med*. 2019;45:823–33. <https://doi.org/10.1007/s00134-019-05617-x>.
5. Centers for Disease Control and Prevention. <https://www.cdc.gov/infectioncontrol/guidelines/bsi/index.html#rec52017> and <https://www.cdc.gov/infectioncontrol/guidelines/bsi/index.html#rec6>.

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